Is the Female of the Species Superior to the Male?

1—The First Steps in the Love Dance of the Languedoc Scorpions. The Smaller Figure Is the Male. They Stand So for Many Minutes, Holding Claws and Looking Rapturously Into Each Others Eyes.

2—A Later Detail of the Dance, in Which the Pair, Claws Still Clasped, Move Slowly Around Each Other.

3—The Scorpion "Vamp" Coyly but Determinedly Leads the Fascinated Suitor Into Her Home, Walking Backward as She Goes.

4—Tiring of Him, the Divorce Proceedings Are Simple and Direct. Being So Superior in Strength, the Female Easily Kills Her Mate; and Having Done So, She Eats Him.

Astonishing Facts Gathered by French Scientists Investigating the Comparative Abilities of Mr. and Mrs. Bug, Beast, Bird and Man

By Dr. W. H. Beal.

THE Academy of Sciences of France has just given to its members a resume of the results of a series of exhaustive observations by certain of its most distinguished members into the relative places of the male and the female in all forms of life.

Reluctantly, but with the honesty that characterizes all true scientists, they assert that almost invariably in bug and fish and beast and bird and reptile the female is bigger, stronger, more subtle, more cunning, more intelligent and less eager than the male of the species.

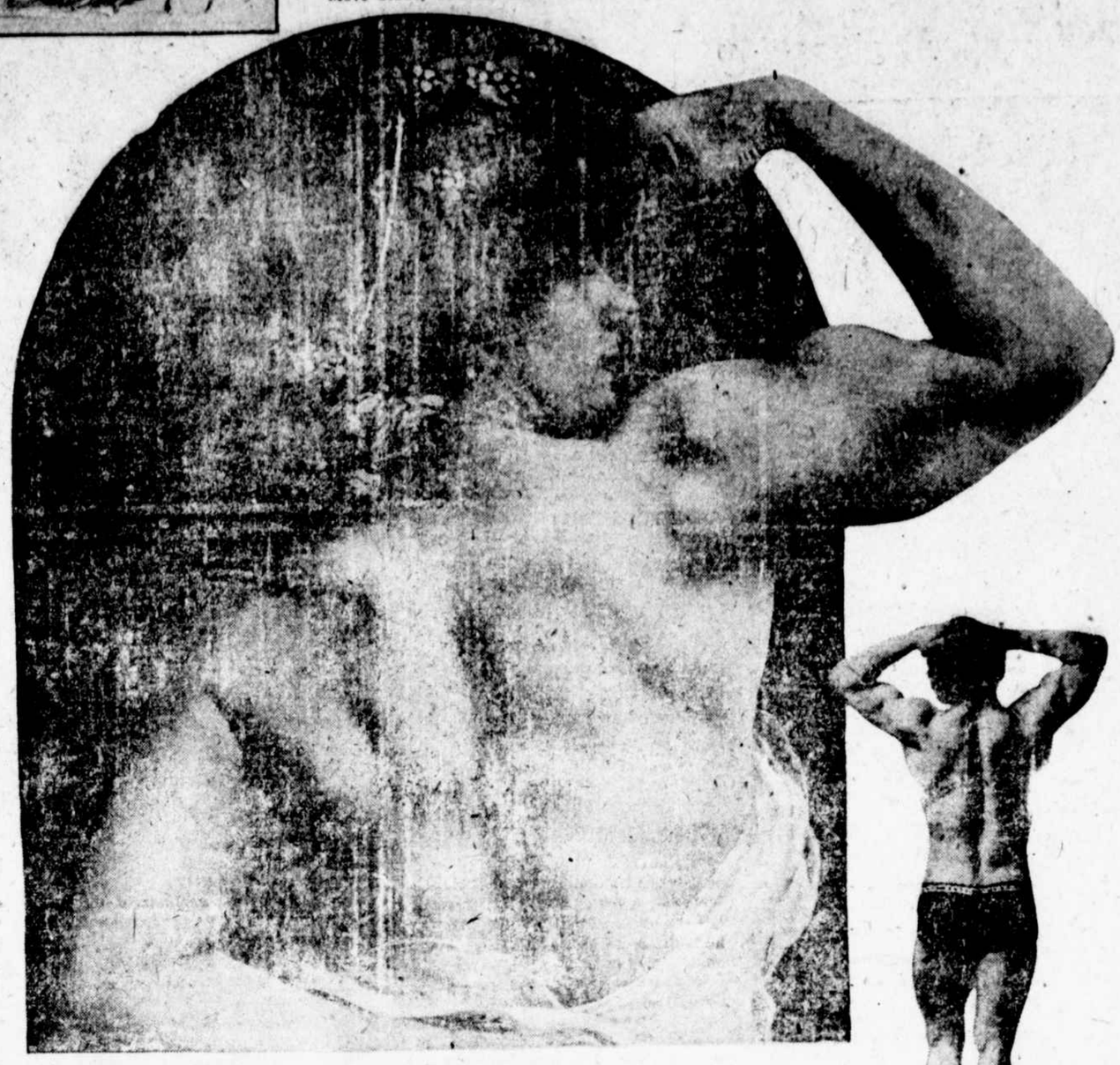
They made the equally astonishing discovery that this holds only partly true among the apes and monkeys. The male gorilla and orang-outang, and, in fact, all the primates of higher ages, are very much stronger than the female and much fiercer; the females, however, surpass them in intelligence and especially at the time of motherhood. This is true also of the chimpanzee. Successive motherhoods leave the female with an ever-increasing residuum of wisdom. Such periods, of course, pass over the male unnoticed. The consequence is that in about the fifth year of life gorilla, orang-outang, chimpanzee and baboon females are some ages ahead of their mates in ability to cope with the outside world and the enemies that beset them.

In gregarious species, where there is a semblance of tribal realization and order—such as the placing of sentries, primitive and communal feeding and an assembling for offense and defense—it would seem that the females play the larger part in the organization.

The investigations of the French academicians into the actual place of the female in the lower animal kingdom were begun long before the war. But the surprising statistics of women's work in the war and the revelation that in general they could accomplish every physical achievement of the men they replaced sharpened the scientists' interest in the work that they were carrying on.

And in these statistics, by the way, the French report two very interesting things. The first is that the one exception where women could not do a man's work just as well and in many cases better was in such tasks as—electrical riveting, or, rather, that part of it which requires the holder of the rivet to be placed strongly against the breast. It is admitted, however, that the female frame might in time accustom itself to such pressure as is required. The second surprising fact is that no case of a woman being shell shocked is recorded among those nurses and female attendants who kept close to the front, and many of whom were engaged close to the trenches and under the heaviest artillery fire. The importance of this as an argument for the greater nervous and emotional stability of the woman is obvious.

The greatest examples of female superiority over the male was found, the report states, in the insect world. A very interesting and remarkable exemplification of the part the unfortunate male plays in the economy of life was found in the very peculiar tragedy of [illegible] called the Languedoc scorpion.



Even in Athletics, the French Scientists Found Women Can Beat Men, Once They Really Put Their Mind Down to It. The Muscular Lack of the Female Woman Called "Charmian" Is Considered by Experts Fully as Powerful and More Aesthetic Than the Knotted Back of Sandow, the Strong Man, Shown Beside Her.

Here the male is very much smaller than the female. He is weaker, physically, and dwells most of his time [illegible] he sleeps and rests in any occasional crevice or burrow among the rocks that happens to be close to him when he feels that he needs sleep or rest. For the female [illegible] maintains with pride and guards against invasion with all the determination of the ancient housewife. No roving nor haphazard life for her; she has a passion for permanency—except as to husbands!

After a while, when nature's mysterious urge is felt, she steps out and looks around for an acceptable suitor. Into the radius of her wiles comes one of the poor, meek, dubbing-along gentleman of her kind. The eyes of the charmer rest upon him. She makes peculiarly ingratiating motions with her lobster-like claws. Timidly but fascinatingly he draws near her—lured already from the safe, everyday paths he has followed.

She continues to vamp him!

Closer and closer comes what, in the human vernacular, we would call the poor boob. She reaches out and catches his hands—that is, his claws. His fascination is now almost complete. For many minutes they remain quiet, holding claws, while her multiple eyes languish upon his. Still clasping hands they execute a curious stilted dance, turning and twisting about the floor before her lair. Then, when the male's forebodings are thoroughly soothed and his scorpion heart presumably is pulsing wildly with love and all his past life forgotten, she coyly leads him, walking backward, into her home.

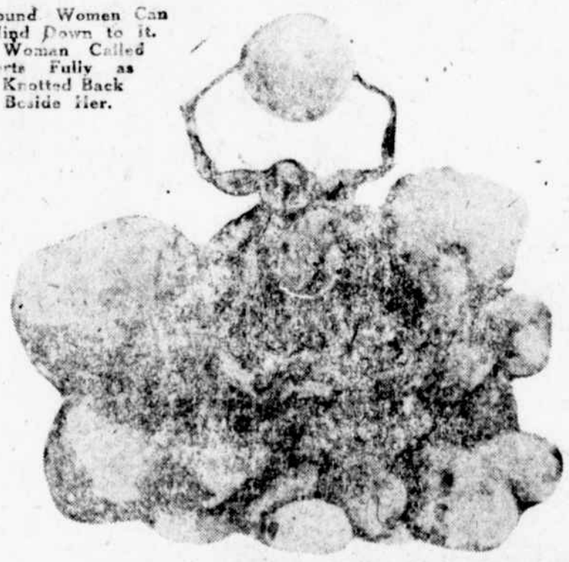
But do they dwell there happy forever after? Emphatically they do not. It is not long before the alert and restless lady grows tired of this mate she has charmed. The process of divorce is simple and direct. She kills him and eats him. Thereafter, for long, she lives on, vamping still other unsuspecting scorpion youths, who follow in due time the same tragic path as did their predecessors.

Here in the Languedoc scorpion is epitomized the tragedy of most of the males of the female-dominated insect world.

Almost invariably the male spider is much smaller than the female. The French academicians quote the curious case of a New Guinea species to which the suitors flock as moths to the flame and to meet the same fate. But in this curious spider there has arisen an inexplicable aesthetic sense. When mating time comes around the lady—half a dozen times as big as the wooer—sits back in the bower of her web. To that bower come her suitors, one by one. They pause before this huge object of their spidery affections, and if she does not at once dart out and devour them they begin to dance before her. With waving legs they tread a curious measure. They pirouette before her and generally perform a nature dance, many of whose movements are exactly duplicated by our own barefooted, barelegged devotees of eurythmics.

Either the watching lady thinks them very good or very bad. If they are very good, by means unknown to us, she invites them into her dwelling. But if she thinks them very bad they never have a chance to appear before a kindlier audience. Out she flashes and into her larder they go.

More remarkable than this perception of aesthetics is the unquestioned knowledge of another form of tropical spider of the value of the vivifying, energizing rays of the sun. The male of this species is a careless, wandering wastrel. The female is an architect, weaver and physicist. She builds her nest with a careful eye toward its protection and its proper exposure to the sun. Its interior is arranged to give her perfect leverage and comfort in the task which confronts her. Having laid her eggs she incases them and rolls them up in a web of silk which she spins and which is very curiously a ray filter.



The New Guinea Spider Mother Holding Up Her Eggs to the Sun to Be Hatched—One of the Most Remarkable Instances of Female "Knowledge" in the Insect Kingdom.

Now it has been found by scientists, studying the effect of light upon growing things, that the different colors of the spectrum have a pronounced effect upon the rate of growth and development of eggs and roots. The red rays inhibit growth, and under them eggs become frequently infertile and seeds exposed only to them sprout feebly and soon die. The light ray is, of course, an electro-magnetic vibration of a certain intensity. The red ray is much slower in vibration than the violet. The violet ray carries, also, certain chemical properties. Eggs and seeds develop and sprout very rapidly under violet light.

Now comes the most amazing thing about this spider in question. The silken coverlet which she throws over her egg stops out the red light entirely, keeps out a great proportion of the yellow and green, but admits almost all the violet. Having spun her covering she lifts the little ball upon four of her legs, poises herself upon the others in the nest, and holds the ball up to the fructifying heat and light from the sun. Throughout the days she does this, until the eggs hatch out into her children.

How this spider came to know this physical fact of the sun's power, how it came about that she could modify her spinning to produce just the proper kind of fabric that was best for the eggs is one of the mysteries of life.

As great a mystery are the domestic instincts of the very interesting Surinam toad, of which the female is the undisputed boss of the establishment. When she lays her eggs she makes her husband place them on her back in little indentations which at that time appear. Over these eggs a film stretches protecting them. Within them they hatch out into tadpoles. They rest within these little holes until they have eaten up all the yoke sack which hangs under them like a food basket. By this time they have become little frogs, and then Mr. Toad is indeed kept busy feeding them, marshaling them back when they fall or jump out, and generally doing yeoman work until they can shift for themselves. And if he does not do it Mrs. Toad punishes him severely with claws and buttings with her hard head.

The Surinam Toad, Showing the Little Toads Hatching Out in Cradles on Her Back, Whose Feeding She Insists Upon Mr. Surinam Toad Doing.

Whenever a group of lower animals is indicated, in which the male is the smallest, the French award morphological superiority to the female, with the male practically either negligible character or merely an aid to reproduction.

In human beings, however, this standard does not apply, since size in either sex has no bearing on either prowess or intelligence. The little man and the big man, the little woman and the big woman compare up, and size has little to do with achievement.

Among animals with backbones, vertebrates, they find this condition true as regards the Cyclostomata, or degenerate eel-like fish; Selachii, or sharks; dogfish and skates; Teleostomi, or ganoid fish—fish with plates instead of scales, like our garfish—Dipneusti, or lung fish; Amura, or frogs and toads; and reptiles generally.

As an example of the last named, consider the huge pythoness, twenty-three feet long, in the New York Zoological Park, and other female snakes as compared with their small-sized mates. If there is any crushing to do this pythoness can probably make pulp of any sized creature extant, from elephant and rhino to whale. It takes sixteen husky men to hold her when she is uneasy. She has brains, too, refusing to eat for long intervals in order to get rid of the parasites which infest her. If she has no food in her there is nothing for the parasites to feed upon and they starve.

In most birds, the French find, the males are usually larger, but not in the case of hawks and owls, where the female is much larger. In mammals, also, the males are usually larger. It is explained that in birds and mammals this implies a longer growth period and slower attainment of maturity to achieve a larger size, particularly in the primates or high apes. The males are also accorded a dichromatic condition—that is, brighter or more contrasted colors, possession of more marked integumentary structures, such as odiferous glands, combs and plumes, and greater development of feathers, hairs, spurs, etc.

But greater intensity of color does not denote superiority, it is claimed, nor does greater complexity of size or size of integumentary structures, which have little morphological importance, for the reason that they lack conservatism and are susceptible to change according to season and conditions.

The female, having her progeny to look after, makes brighter colors in the male essential to attract the attention of enemies; makes horns and spurs essential to fight these enemies, and makes outward appearances of the male, such as combs, plumes, mains, whiskers, etc., essential in mating.

Further morphological superiority is granted to females of all species of animals, from humans down to worms, in all apparatus for nursing and protecting progeny.

The male ant, lasius, although having larger compound eyes than the female, has a rudimentary cerebrum (forebrain), while the worker female with smaller eyes, has a brain with the greater number of ganglion cells. Greater size and complexity of peripheral—around the rim—sense organs, is regarded as a more primitive condition than that of small and less complex sense organs, operated by a more concentrated nerve system.

A similar condition has been noted for the human eye by Kudo, of Japan. The peripheral nervous system, composed essentially of sensory nervous units, is earlier—a throwback to first formed eyes. The centralized, reflex mechanism of the eye is morphologically far later—a distinct evolutionary advance. First, there was a simple sensory apparatus for seeing, until, after evolutionary processes continued, there arose an internal co-ordinating centre of sight. A central complexity of the nervous system denotes a morphological advance. It results in the more complex sense organs disappearing, to be replaced by numerous sense organs that are better and more useful, each being simple rather than complex.

The French make deductions from the above considerations. Applied to such groups as have jointed legs—anthropodous—while some of the males may be equipped with sense organs of larger size, the character cannot be regarded as of structural superiority unless associated with a less complex nervous system, which is seldom the case. The male ant is therefore dubbed as decidedly inferior to the female, as regards its nervous system as a whole. The secondary condition of form and coloration generally are to the credit of the male ant, but, as such characters lack conservatism, that is, are not permanent, they are said to imply no structural value.

The female has better brain and greater organic complexity. Also the nurse cells of not only insects, but of rotarians and crustaceans, are found to be more specialized than the similar cells of the males.

The big point of the French investigators, affirmed also by recent papers of other morphologists, is that nature stores more nourishment, or yolk substance, in the eggs from which females are to emerge, giving better food supply for the embryos. Investigation of many specialists show that the cells from which males are to emerge have only a limited amount of nourishment.

This means that the females within the whole range of the animal kingdom arrive in the world much better fitted to survive than do males. The male rotarian, for instance, is born from a smaller egg than the female, lives a day or two without feeding, having no digestive organs, then dies. The female, on the contrary, is nourished while in the embryo stage by yolk stored within the egg, emerges a larger and more complicated rotarian, and lives for months. The rotarians are rather small water forms, among the most beautiful and striking of all known animals.

The American Museum entomologist, Frank E. Lutz, says of the water bug, belostoma: "The females, and also the females of certain other genera, fasten their eggs on the backs of the males. It is said that the males do not take kindly to this function, but cannot help themselves." The males are thus forced to carry the eggs to the brood chamber against their will. Another order of insects is mentioned in which the females force the males to carry the young. Lutz states: "Many people think all ants are wingless because they see only the workers. However, the perfect forms, which are usually produced but once per year, are fully winged and indulge in a nuptial flight. After the flight the males die, but the females settle down to the stay-at-home tasks. The rearing of all except the first of the progeny is attended to by old-maid daughters, unless the species has learned the trick of keeping servants or 'slaves.'"

One species of South American monkey is said actually to come in the catagory of female dominance, the male being forced to care for the young. This also applies to certain species of birds. Even the male ostrich is not immune and must sit on the eggs and watch the young for a certain fixed number of hours.